

**In the Claims:**

**Please amend claims 18, 27, 45 and 52 as follows:**

B<sup>1</sup> 18. (Amended) The local area network as in claim 17, wherein said address is assigned **[via a method selected from the group consisting of manual assignment and automatic assignment by the local area network]** manually.

B<sup>2</sup> 27. (Amended) The local area network as in claim 21, wherein at least one of said plurality of serial intelligent cells further comprises:

- (e) a payload interface; and
- (f) at least one **[device selected from the group consisting of a]** sensor **[and an actuator]**.

B<sup>3</sup> 45. (Amended) The local area network as in claim 44, wherein said address is assigned **[via a method selected from the group consisting of mutual assignment and automatic assignment by the local area network]** manually.

B<sup>4</sup> 52. (Amended) A local area network for data communication, sensing, and control comprising a plurality of serial intelligent cells interconnected exclusively by electrically-conducting media into at least one communicating pair, wherein:

- (a) each of said electrically-conducting media interconnects no more than two of said serial intelligent cells;

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- (b) each of said at least one communicating pair includes one of said electrically-conducting media and exactly two of said serial intelligent cells;
- (c) each of said at least one communicating pair engages in a communication exclusively over said electrically-conducting media; and
- (d) each of said at least one communicating pair is operative to engage in said communication bidirectionally and independently of the communication of any other of said at least one communicating pair;

and wherein at least one of said plurality of serial intelligent cells comprises:

- (a) a line interface;
- (b) a modem;
- (c) a control block;
- (d) a power supply;
- (e) a payload interface; and
- (f) at least one [device selected from the group consisting of a] sensor [and an actuator].

Please add new claims 56-59 as follows:

56. (New) The local area network as in claim 17, wherein said address is assigned automatically by the local area network.

57. (New) The local area network as in claim 21, wherein at least one of said plurality of serial intelligent cells further comprises:

- (e) a payload interface; and
- (f) at least one actuator.

58. (New) The local area network as in claim 44, wherein said address is assigned automatically by the local area network.

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59. (New) A local area network for data communication, sensing, and control comprising a plurality of serial intelligent cells interconnected exclusively by electrically-conducting media into at least one communicating pair, wherein:

- (a) each of said electrically-conducting media interconnects no more than two of said serial intelligent cells;
- (b) each of said at least one communicating pair includes one of said electrically-conducting media and exactly two of said serial intelligent cells;
- (c) each of said at least one communicating pair engages in a communication exclusively over said electrically-conducting media; and
- (d) each of said at least one communicating pair is operative to engage in said communication bidirectionally and independently of the communication of any other of said at least one communicating pair;

and wherein at least one of said plurality of serial intelligent cells comprises:

- (a) a line interface;
- (b) a modem;
- (c) a control block;